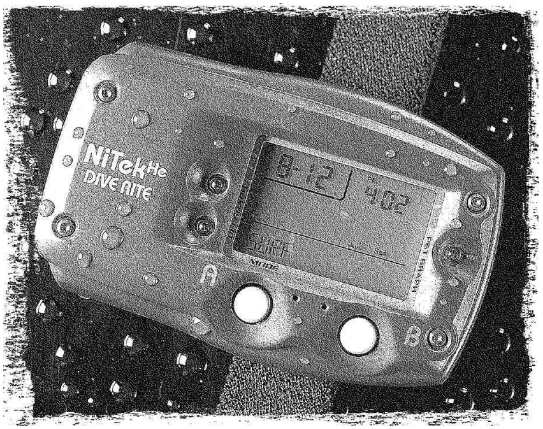
NiTek He Dive Computer

User Guide



Dive Rite

Date of purchase: _____

www.diverite.com

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Chapter 1

Introduction

Summary

This chapter provides an overview of the NiTek He, lists the NiTek He's features and functions, and covers warning information that should be read before using your NiTek He.

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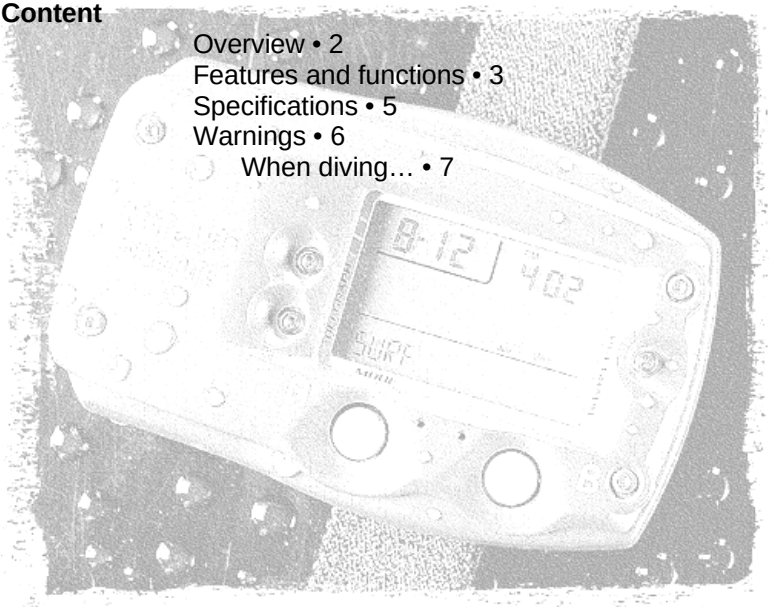

Overview

Congratulations on your purchase of the NiTek He dive computer. The NiTek He is a sophisticated and comprehensive dive computer that was designed to offer you the latest in dive computer technology, safety, and reliability.

The NiTek He dive computer is a multifunctional computer for recreational diving, providing information on depth, dive times, no-decompression and decompression times, and nitrogen and helium absorption and elimination during all dive phases, including ascent, surface interval times, and subsequent dives.

This information is displayed on an easy-to-read display, providing simple and direct communication between the diver and the computer. With an easy-to-read display, the diver has no problem following and reading the displayed information.

The NiTek He comes standard with a number of modes, including a time mode, dive set mode, dive plan mode, log mode, profile mode, PC transfer mode, and dive mode.

Note: It is extremely important that you carefully read and understand this manual. Make sure you fully understand how the NiTek He operates before diving with it.

This manual has been divided into three chapters:

- **Introduction:** Covers the features and functions, specifications, and warnings for the NiTek He
- **Using the NiTek He:** Covers the operation of each mode for the NiTek He
- **Care and maintenance:** Covers how to properly care for and maintain the NiTek He and change the battery

Features and functions

The NiTek He incorporates a number of important modes and features:

- The NiTek He turns on automatically upon descent
- On the surface, the NiTek He constantly displays a minimum of date and time
- The NiTek He uses easily accessible and highly reliable push buttons instead of exposed electrical contacts
- The NiTek He can be programmed to monitor exposure to seven different gas mixtures during a dive. Gas mixtures including combinations of oxygen, helium, and nitrogen can be programmed. Underwater, NiTek He users can switch between mixes at the push of a button.
- The NiTek He is capable of functioning up to a depth of 394 feet (120 meters) when in dive computer mode and 656 feet (200 meters) when in gauge mode
- The NiTek He automatically adjusts for altitudes up to 19,685 19,680 feet (6,000 meters)
- The NiTek He displays a variety of data underwater including: date, time of day, current and maximum depths, no-decompression dive time elapsed and remaining, and water temperature
- The NiTek He displays data specifically related to the use of Enriched Air Nitrox (EANx) including: fraction of oxygen (FO2) setting, partial pressure of oxygen (PO2), and an oxygen limit index (OLI) representing the cumulative effect of a diver's exposure to elevated PO2s (the theoretical "CNS clock") as a bar graph
- Through a combination of audible and visible alarms, the NiTek He helps to alert the diver to a number of possibly hazardous situations including: violation of ascent rate, no-decompression state, and whether mandatory decompression stops are necessary or if the diver has ascended above a mandatory stop ceiling. Nitrox specific warnings occur when the diver approaches or exceeds a limiting PO2 of 1.4 or 1.6

atmospheres depending on what is set, and when cumulative exposure to elevated PO2s exceeds recommended limits.

- The NiTek He can be programmed to display data in Imperial or metric units
- Dive depth can be displayed in fresh or salt water equivalents
- Special mode indicators makes it easy to determine what display mode or screen you are in at any time
- The NiTek He has a back light to illuminate the screen, while in dive mode
- The NiTek He's memory capability enables it to hold and display log data on up to 30 hours of dive time or 60 dives
- Detailed dive-profile information can be stored for each dive through user-programmable sample intervals of 15 or 30 seconds (longer intervals allow data for a greater number of dives)
- Dive data can be uploaded and stored in a dive log format on a desktop or laptop computer using the NiTekLogic™ software and optional PC interface

Specifications

Algorithm: Buhlmann ZH-L16

Sample tissues: 16

Tissue half-lives: from 5 to 640 minutes

Size and weight
- Length: 4.25 in (10.8 cm)
- Height: 1.25 in (3.2 cm)
- Weight: ounces (g) 8 oz.

Display face
- Backlight illumination
- Low battery indicator
- Two user buttons
- Water immersion switch

Depth sensor
- Sea and fresh water calibration
- Measuring range: 0 to 394 feet (0 to 120 m) measured every second (Gauge mode 656 feet (200 m)
- Accuracy: +/- 3% + 2 feet (0.5 m)
- Surface interval time: from 0 to 48 hrs
- Diving time: from 0 to 599 minutes 699
- Ascent rate warning: 26 to 59 feet per minute (8 to 18 m)

Thermometer
- Measuring range: 23 °F to 104 °F (-5 to 40 °C)
- Accuracy: +/- 4 °F (2 °C)
- Measurement interval: Every minute during dive mode

Clock
- Accuracy: +/- 30 sec on average per month
- 24-hour display

Altitude
- Altitude function monitoring: from 0 to 19,680 19685 feet (6,000 m) ~~measured every 10 minutes~~
- Measurement interval: Every 10 minutes

Battery
- Li/MnO2 CR 2032 3V button battery
- Average battery life: About 3 years (50 dives/year)
- Replacement: User replaceable

Breathing gas
- Mixes: 7 gas settings
- O2 setting range: 8 to 99 percent
- O2 setting: 1% increments
- He setting range: 0 to 92 percent
- He setting: 1% increments

Dive log
- Dive logging: Maximum of 60 dives
- Profile logging: Maximum of 30 hours
- Profile sampling rates: 15 or 30 seconds

Warnings

This information has been developed for your safety. Please read and understand this manual completely before using your NiTek He dive computer.

Important safety information:

- Before using your NiTek He, it is extremely important that you read the following points—as well as similar warning and caution notices that appear throughout this manual. Failure to do so could result in damage to or loss of equipment, serious personal injury, or death.
- The NiTek He is designed for use by certified divers who have maintained a sufficient level of knowledge and skill proficiency through a combination of formal training, ongoing study, and experience. It is not intended for use by persons who lack these qualifications and thus, may not be able to identify, assess, and manage the risks scuba diving entails. Use of the NiTek He in conjunction with Enriched Air Nitrox (EANx) or Trimix requires that divers be trained and certified for Nitrox diving.
- The NiTek He is not intended for use by commercial or military divers whose activities may take them beyond the commonly accepted depth limits for recreational or technical diving.
- Although the NiTek He is capable of calculating decompression stop requirements, users must remember that dives requiring mandatory stage decompression carry substantially greater risk than dives made well within no-decompression limits.
- The NiTek He is designed for use by one diver at a time. Divers should not share a single NiTek He—or any other dive computer—on the same dive. Additionally, no diver should lend their NiTek He to anyone else until it calculates that no measurable residual nitrogen remains after previous dives and no longer displays the “desaturation time” indicator while in time mode. Further, no diver should use their NiTek He for repetitive dives—unless that same properly functioning NiTek He has accompanied them on all

previous dives in the same repetitive dive series and is thus, accurately monitoring the diver's total exposure to oxygen, helium, and nitrogen.

- Neither the NiTek He—nor any other dive computer—physically measures the amount of nitrogen present in body tissues or the rate at which nitrogen is being absorbed or released. The NiTek He monitors depth and time, and uses this data to work a mathematical formula designed to emulate how individuals in good general health and whose physical characteristics do not place them among those at higher risk of decompression illness (DCI) are assumed to absorb and release nitrogen from body tissues. Thus, the NiTek He cannot compensate for factors such as age, obesity, dehydration, cold, or exertion, which experts believe place divers at greater risk of DCI. If these, or similar factors apply to you, use the NiTek He—and other dive computers or dive tables—with even greater caution.
- Experts still know surprisingly little regarding the exact nature and causes of decompression illness (also known as decompression sickness, DCI, or DCS). Susceptibility to DCI may vary substantially from person to person and from day to day. Neither the NiTek He—nor any other dive table or computer—can guarantee that you will not suffer decompression illness. Even though you use these items correctly, you may still suffer DCI. Use your NiTek He conservatively and in conjunction with other dive planning devices, such as dive tables. Do not rely on the NiTek He, or any similar device, as your sole means of avoiding decompression illness.

When diving…

- Do not "push" the no-decompression limits (NDLs). Make safety stops before ascending. If you exceed the no-decompression limits, check your breathing gas supply at all stop depths.
- The NiTek He does not monitor breathing gas supply. You must monitor this yourself, on every dive, using a submersible pressure gauge or equivalent device.

Do we want to suggest that someone buy a second computer to backup the information on the Nitek HE?

- Do not rely solely on this or any other dive computer. Take a back-up dive computer or dive tables (along with a separate means of monitoring depth and dive time).
- Be aware that the NiTek He makes assumptions regarding residual nitrogen based on altitude settings. Avoid making abrupt changes in altitude following a dive, as doing so may be very dangerous.

Chapter 2

Using the NiTek He

Summary

This chapter provides topics about using, setting, and understanding each of the modes and options of the NiTek He.

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Getting started

The NiTek He has many modes and screens and a number of options that can be changed depending on your dive location and profile. The following is a checklist of general things that you should pay attention to before, during, and after a dive.

Before a dive

- Check that the proper time and date are set. If you traveled, your NiTek He may be set to your home time zone.
- Check that the proper mixes are set. If you are using gauge mode, make sure it is set to "GAGE."
- Make sure that you review the dive plan mode for maximum depths and times for the mixes you are using

Remove puncuaton for consistentcy

During a dive

- Monitor the NiTek He throughout your dive for depth and time
- Monitor the PGT and O2 loading bar graphs
- Pay attention to any alarms, such as an ascent rate warning
- Follow the no-decompression limits or complete the required decompression displayed

After a dive

- Monitor surface interval time if making another dive
- Follow the no-fly requirements
- Review your dive using the log mode and profile mode
- Download the dive log to your PC if you have the optional PC interface

Accessing display modes and screens

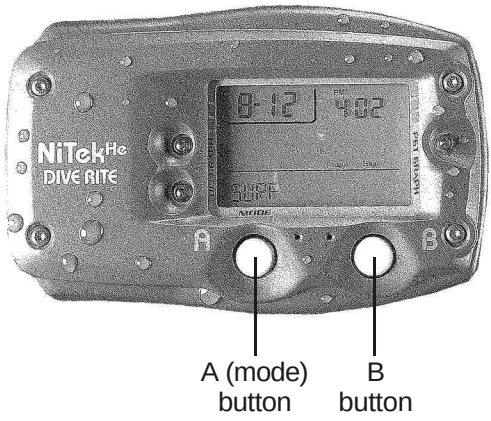
There are some display modes that the NiTek He enters and/or exits automatically. For example, by taking the NiTek He underwater, the dive mode automatically turns on. Upon surfacing, the NiTek He automatically enters the surface mode.

To access other modes or screens, requires the use of the NiTek He's buttons.

Button operation

The NiTek He has two buttons (A (mode) and B), which are used to access the different modes and screens. To use the buttons, simply press the button once or hold the button down depending on what you are trying to do. The correct procedure to use is clearly defined in each topic throughout the manual.

- A (mode) button: This button is used to select and scroll through the different modes, such as time mode and locks in setting values when setting options
- B button: This button is used to set an option's setting, such as setting the date

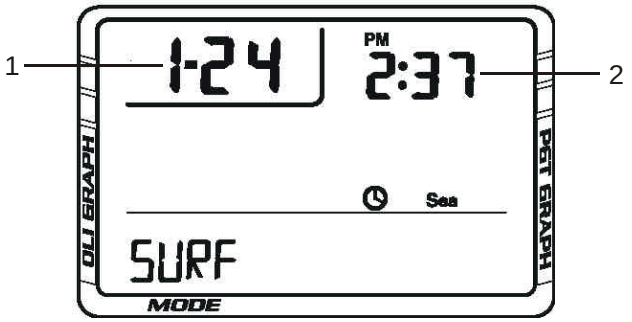


The front of the NiTek He, showing the two buttons that are used to access and setup the different modes and options

Surface mode

Surface mode is the NiTek He's default mode, with "SURF" displayed on the screen. The computer returns to this mode automatically upon surfacing from a dive and from other modes when two to three minutes of inactivity have passed.

The NiTek He may display additional information concerning exposure to nitrogen and oxygen, desaturation time, surface interval time, and altitude. These items are covered in "Surface mode (upon surfacing from a dive)" and "Altitude operation."



(1) Date: This is the month and day. The first digit is the month and the second digit is the day. For example, 1-24 represents the twenty-fourth day of January.

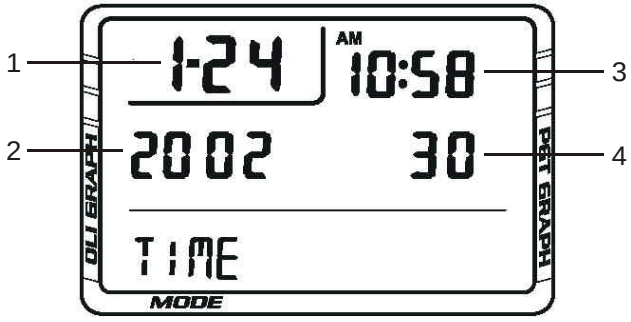
(2) Time of day: This is the time of day expressed in hours and minutes. Time can be displayed in 24-hour (military) format or 12-hour format. When in 12-hour format, an AM or PM appears on the screen.

Entering surface mode from another mode

When you are using other modes, it is very easy to return to surface mode. Simply, press and hold button A for two to three seconds or press button A until "SURF" is displayed.

Time display and set mode

Time display and set mode is used to set and view the time of day and date. When you enter this mode, “TIME” is displayed on the screen.



(1) Date: This is the month and day. The first digit is the month and the second digit is the day. For example, 1-24 represents the twenty-fourth day of January.

(2) Year: This is the year.

(3) Time of day: This is the time of day expressed in hours and minutes. Time can be displayed in 24-hour (military) format or 12-hour format. When in 12-hour format, an AM or PM appears on the screen.

(4) Seconds: This is the seconds for the time of day.

To display the time and date:

1. Press and hold button B while in surface mode.
2. Release button B to return to surface mode.

Setting the time and date

Setting the time and date are done in the time set mode. You can enter or change the year, month, day, hours, minutes, and seconds in this mode.

To set the time and date:

1. Press and hold button B for four to five seconds while in surface mode.

   The “seconds” field flashes.

2. Press button B to “00” the seconds field or press button A to select another field, such as the minutes field.

3. Using buttons A and B, set the year, month, day, hour, minutes, seconds, and whether you want the time displayed in 24-hour format.

   For example, 1:00 PM would be 13:00.

4. When finished, press button A for two to three seconds to return to surface mode.

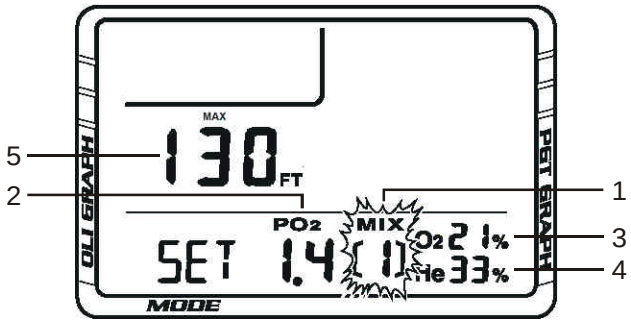
Dive option set and display mode

Dive option set and display mode is where all “dive” option settings are displayed and set up.

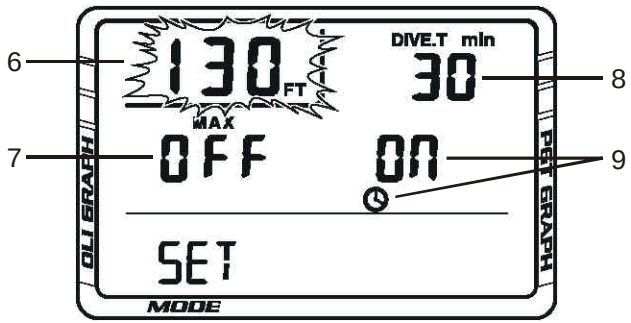
Using computer mode

Computer mode is when the NiTek He is operating in the normal computer mode. “DIVE” is displayed on the screen and all computer mode functions operate normally. The dive option set and display mode is used to review and change option settings that pertain to an upcoming dive. The operating depth limit when in dive operation is 394 feet (120 meters).

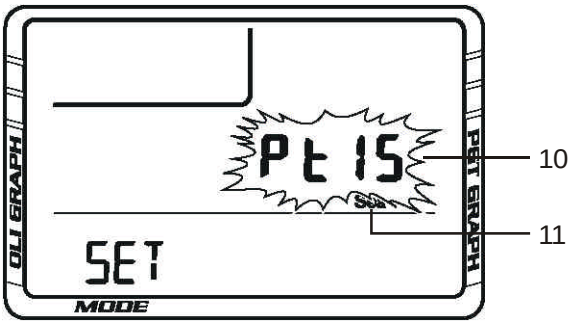
When the computer is in dive set mode, “SET” is displayed on the screen. There are three screens that are used to set up all of the computer mode options.



Dive option display and set fields for screen one



Dive option display and set fields for screen two



Dive option display and set fields for screen three

(1) Mix number: This is the mix number you are setting.

(2) PO2 alarm setting: This is the PO2 alarm setting for the mix number selected. The PO2 alarm can be set for either 1.4 or 1.6.

(3) FO2 gas percentage: This is the oxygen percentage for the mix number selected. The O2 percentage setting range is 8 to 99 percent.

(4) FHe gas percentage: This is the helium percentage for the mix number selected. The He percentage setting range is 0 to 92 percent.

(5) Maximum operating depth (MOD) for FO2 setting: This is the safe operating depth (maximum) for the mix selected. This is based on a limiting PO2 factor of either 1.4 or 1.6 atmospheres.

(6 and 7) Max depth alarm: This is an alarm that can be set to sound when a maximum depth is reached. When the alarm is turned on, the maximum depth alarm symbol is displayed.

(8 and 9) Maximum time alarm: This is an alarm that can be set to sound when a maximum dive time is reached. When the alarm is turned on, the “clock” alarm symbol is displayed.

(10) Dive log profile sampling rate: This is how frequently depth data is measured stored during a dive, which is 15 or 30 seconds.

(11) Salt or fresh water: This is the setting for salt water or fresh water use.

To enter dive set mode:

1. Press button A until “SET” is displayed.
2. Press button B to enter the dive set up option screen.
3. Using the topics that follow, set up your desired dive option settings.

Setting Mix1 through Mix7 gas percentages

You must set the breathing mix you plan on using on your dive. There are up to seven different mixes that can be used for any one dive. Not all of the mixes have to bet set, only the mixes that you plan on using. Each mix can have an oxygen (FO2) and helium (He) setting.

- FO2 percentages can be set for 8 to 99 percent oxygen
- FHe percentages can be set for 0 to 79 percent helium 0-92%

Note: If you only plan on using one mix on your dive, you only need to set mix1.

To set gas mix percentages:

1. Press button A until “SET” is displayed.
2. Press button B to enter the dive set up option screen.

   Mix1 is flashing.
3. Press button B to change the mix number to the desired mix number that you want to set or change.
4. Press button A to select the PO2 setting.
5. Press button B to set the PO2 setting for the selected mix number.
6. Press button A to select the O2 gas percentage.
7. Press button B to set the O2 percentage you are setting for the selected mix number.

   Note: Maximum operating depth changes for the O2 percentage selected.
8. Press button A to select the He gas percentage.

9. Press button B to set the He percentage you are setting for the selected mix number.
10. When finished, press button A to advance to the next option (maximum depth alarm) or to exit, press and hold button A for two to three seconds to return to surface mode.

Setting the maximum depth alarm

The NiTek He has a maximum depth alarm that is activated when the diver reaches the maximum depth that is set. When the max depth is reached, an audible alarm sounds and the display flashes for three seconds.

The alarm can be turned on or off and can be set from 30 to 390 feet (9 to 120 meters).

To set the maximum depth alarm:

1. Press button A until "SET" is displayed.
2. Press button B to enter the dive set up option screen.

   Mix1 is flashing.
3. Press button A until the screen changes and maximum depth is flashing.
4. Press button B to set the depth when you want the alarm to sound.
5. Press button A.

   The max depth alarm on/off flashes.
6. Press button B to toggle the alarm on or off.
7. When finished, press button A to advance to the next option (dive time alarm) or to exit, press and hold button A for 1 to 2 seconds to return to surface mode.

Setting the dive time alarm

The NiTek He has a dive time alarm that is activated when the diver reaches the dive time that is set for the dive. When the dive time is reached, an audible alarm sounds and the screen flashes for three seconds. Dive time alarm can be used when you want to

set a maximum dive time for your dive. The alarm indicates when this time has expired.

The alarm can be turned on or off and can be set from 10 to 690 minutes.

To set the dive time alarm:

1. Press button A until “SET” is displayed.
2. Press button B to enter the dive set up option screen.

   Mix1 is flashing.
3. Press button A until the screen changes and maximum time is flashing.
4. Press button B to set the time when you want the alarm to sound.
5. Press button A.

   The dive time alarm on/off flashes.
6. Press button B to toggle the alarm on or off.
7. When finished, press button A to advance to the next option (dive profile sampling rate) or to exit, press and hold button A for 1 to 2 seconds to return to surface mode.

Setting the dive profile sampling rate

Stores depth, time, temperature, gas changes, violations

The NiTek He allows you to choose how frequently it samples and stores depth data. The data it samples and stores is used in profile mode or when the data is uploaded to a personal computer. There are two sampling rates to choose from, 15-second and 30-second. (30 sec is default)

The 15-second sampling rate enables the computer to sample and store depth data every 15 seconds during a dive. The 15-second sampling rate provides a more detailed dive profile, but because it stores more information, fewer dives can be stored.

The 30-second sampling rate enables the computer to sample and store depth data every 30 seconds during a dive. ~~The 30-second sampling rate is the computer’s “default” setting.~~ The 30-second rate provides a less detailed dive profile, but it is capable of storing more information for more dives.

Note: When the computer's memory storage is full, it overwrites the oldest dive profile data stored with the new information.

To set the dive profile sampling rate:

1. Press button A until "SET" is displayed.
2. Press button B to enter the dive set up option screen.

   Mix1 is flashing.
3. Press button A until the screen changes and the dive profile sampling rate is flashing.
4. Press button B to toggle between 15- and 30-seconds.
5. When finished, press button A to advance to the next option (salt or fresh water use) or to exit, press and hold button A for 1 to 2 seconds to return to surface mode.

Setting for fresh or salt water use

The NiTek He is capable of operating using fresh or salt water calculations. This is based on:

- One atmosphere of saltwater is 33 feet (10 meters)
- One atmosphere of freshwater is 34 feet (10.3 meters)

Before going diving, set the computer to the type of water you are diving in. This allows for the most accurate calculations with respect to no-decompression limits, etc.

To set for fresh or salt water use:

1. Press button A until "SET" is displayed.
2. Press button B to enter the dive set up option screen.

   Mix1 is flashing.
3. Press button A until the screen changes and sea or fresh is flashing.
4. Press button B to toggle between fresh or sea water.
5. When finished, press and hold button A for 1 to 2 seconds to return to surface mode.

Seiko documentation states to not publish this for public knowledge. Is this a product liability?

Setting the computer for metric or Imperial operation

The NiTek He can calculate and give you values in Imperial units or metric units. When in Imperial, depth values are expressed in feet and temperatures are expressed in Fahrenheit (°F). When in metric, depth values are expressed in meters and temperatures are expressed in Celsius (°C).

To set for metric or Imperial operation:

1. Press button A until "SET" is displayed.
2. Press button B to enter the dive set up option screen.

   Mix1 is flashing.
3. Press and hold buttons A and B simultaneously for 10 seconds.

   The computer beeps and changes to either feet (FT) or meters (M).

Understanding default mode

Nothing about want happens when in default mode and time needed to exit default mode

Once the computer's gas mixes are programmed, the settings are stored in the computer until midnight unless the computer is underwater. When the computer defaults, all gas mixture settings change to 99 percent oxygen, 99 percent helium, and 99 percent nitrogen. This is designed to help prevent the diver from diving with the NiTek He when it is has not been properly programmed to reflect the actual gases they are breathing.

If you try to dive the NiTek He when it is in default mode, an alarm sounds signaling that you should return to the surface and enter the correct gas percentages. If you ignore the warning and go diving anyway, your bottom time is going to be severely shortened and your decompression time severely lengthened. The computer also shows that you have exceeded the allowable oxygen exposure limit immediately.

The only exception to default mode occurs when the computer is programmed with an air mixture (21% O2, 79% N2, 0% He). When the computer is set to air, it will not default until the gas mixtures are set to a percentage other than air.

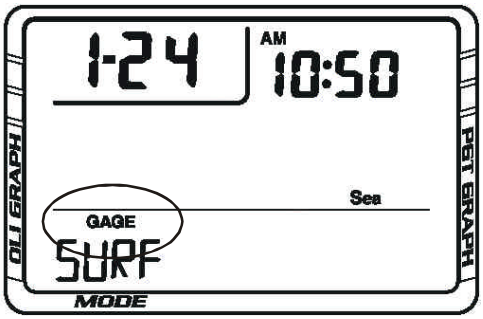
The best way to deal with default mode is to simply avoid it. The way to avoid it is, make sure that prior to every dive you check the gas mixture settings. Make sure they accurately match what you are going to breath during the dive.

Note: You should not rely on the NiTek He as the sole means of tracking your exposure to elevated partial pressures of oxygen. It is recommended that you use either a second computer or another tracking method, such as dive tables.

See note earlier

Using gauge mode

If you do not want to use the NiTek He as a normal "dive computer," the NiTek He has a gauge operation. Gauge operation is when the NiTek He is operating simply as a depth gauge and bottom timer. "GAGE" is displayed on the screen. Exposure to nitrogen and oxygen and no-decompression limits are not tracked and no bar graphs are displayed. This mode is used by divers who are relying solely on dive tables for decompression information. The operating depth limit when in gauge operation is 656 feet (200 meters).



Note: You cannot select gauge operation if the computer calculates that there is still residual nitrogen remaining from a previous dive. Also, you cannot return to dive computer operation until 48 hours have passed since your last dive.

in gauge mode

In gauge mode, you can still set the profile sampling rate, salt or fresh water use, and the maximum depth and time alarms. For more information on these options, see "Dive option set and display mode."

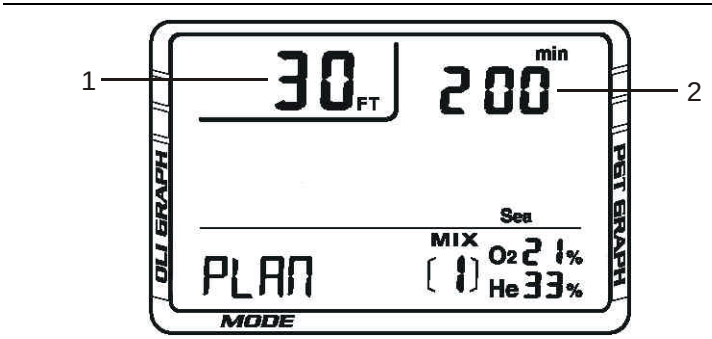
To select and setup gauge operation:

1. Press button A until “SET” is displayed.
2. Press button B to enter the dive set up option screen.
   Mix1 is flashing.
3. Press button B until “G” is displayed for a gas mixture.
   “GAGE” is displayed and the screen changes.

Plan mode

Plan mode enables you to determine how long you can stay at various depths while remaining within the no-decompression limits. The no-decompression time limits are based on the gas mix that is set for mix1. If you are making a dive within 24 hours of a previous dive, the no-decompression time limits are based on the residual nitrogen remaining.

The two most important values that are displayed on the screen in plan mode are the depth and no-decompression time limit.



(1) Depth: When you first enter plan mode, the initial depth displayed is 30 feet (9 meters). You can advance the depth in 10 foot (3 meter) increments. Fourteen different dive plan depth increments can be displayed to a maximum depth of 160 feet (48 meters).

(2) No-decompression limit (NDL): Depending on the depth displayed and the current FO2 setting, the available no-decompression limit, up to a maximum of 200 minutes, is displayed. If the computer is in default mode, a series of horizontal lines appears.

If the NiTek He calculates that there is residual nitrogen present from previous dives, the available no-decompression limits are shorter. Depending on how much residual nitrogen is present, no NDL time may be displayed for some deeper depths. If this takes place, a series of horizontal lines are displayed. Similarly, for combinations of depth and FO2 that would cause a diver to

exceed a limiting PO2 of 1.6 atmospheres, a series of horizontal lines appears in place of the no-decompression limit.

To enter plan mode:

1. Press button A until “PLAN” is displayed.
2. Press button B to enter the plan mode screen.
3. Press button B to advance the depth.

   The no-decompression time limits change automatically based on the depth.
4. When finished, press and hold button A for 1 to 2 seconds to return to surface mode.

WARNING: Do not plan dives to depths deeper than those for which the NiTek He is capable of displaying an available no-decompression limit. Doing so could cause you to exceed the no-decompression limits or a limiting PO2 of 1.4 or 1.6 atmospheres. This may increase your risk of decompression illness or CNS oxygen toxicity and can lead to serious personal injury or death.

Computer mode

Dive Mode-computer??

Computer mode is automatically entered when the computer enters the water. It begins performing its dive calculations once you descend below 5 feet (1.5 meters).

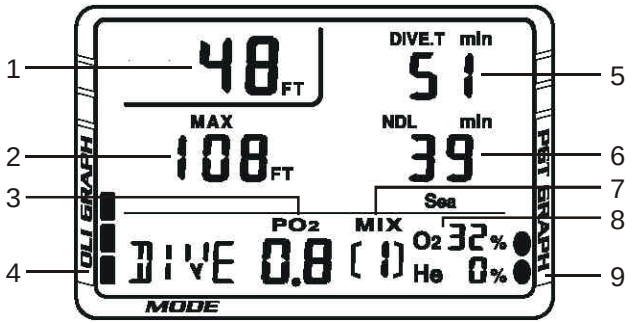
Caution: Prior to diving, always check to ensure that the FO2 and FHe settings are correct and that the computer is not in default mode.

While in diving mode, the computer calculates and displays information about your dive and prompts you with safety stop information and warnings if needed.

While underwater, there are two screens you can toggle between and you can switch to different gas mixes when needed.

Primary underwater screen

When you enter the water, the primary screen shows your depth, remaining no-decompression limit, dive time, max depth, PO2 for selected mix, mix number, O2 and He percentages for gas selected, and the OLI and PGT bar graphs.



(1) Depth: This is the current depth.

(2) Maximum depth: This is the maximum depth that has been reached during the dive.

(3) PO2: This is the partial pressure of O2 at your current depth. It is based on the FO2 settings for the mix selected.

(4) O2 (OLI) bar graph: This is the oxygen limit index (OLI) that calculates the cumulative effect of your exposure to elevated partial pressures of oxygen (PO2s). There are a maximum of eight bars. When all bars are displayed, it means that you have used 100 percent of your “CNS” clock. This graph increases when you descend due to higher partial pressures and may decrease when you ascend.

(5) Dive time: This is the time spent (in minutes) underwater, measured from the time you descended below 5 feet (1.5 meters).

(6) Remaining no-decompression limit (NDL): This is the time that is remaining (in minutes) before you reach the no-decompression limit. This NDL time limit increases when you ascend and decreases when you descend.

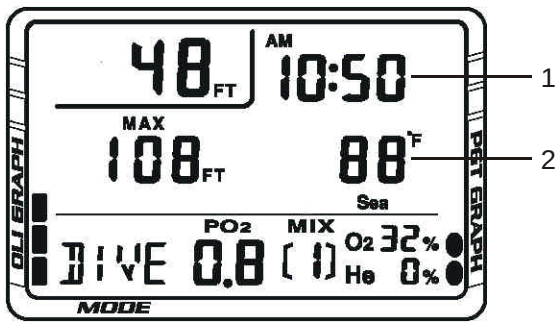
(7) Mix number: This is the mix number the computer is currently calculating dive data for.

(8) O2 and He percentages: This is the oxygen and helium percentages programmed for the gas mix number that is selected.

(9) PGT bar graph: This is how much nitrogen and helium the computer assumes your body has absorbed. There are a maximum of nine bars. When all bars are displayed, it means that you are at or have exceeded the no-decompression limits.

Second underwater screen

While underwater, you can change to the second diving mode screen that displays additional information. When you switch screens, time of day and temperature are displayed.



(1) Time of day: This is the current time of day.

(2) Temperature: This is the lowest temperature that has been reached during the dive.

To display the second diving mode screen:

1. Press and hold button B.

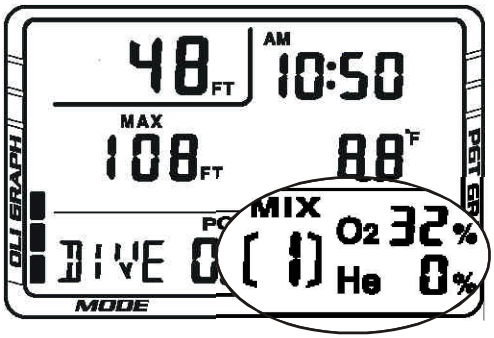
   The back light turns on, and the second screen is displayed.

2. Release button B to return to the primary diving mode screen.

Changing gas mixes underwater

Because the NiTek He has the ability to use seven different gas mixes during a dive, you need the ability to switch between these mixes while underwater. When you switch mixes, the PO2 adjusts to reflect the current mixture you are breathing.

Note: Only switch gas mixes when you have reached the safe operating depth limit for the gas you are switching to.



To change gases underwater:

1. Press button A.

   The back light turns on and the mix number flashes.

2. Press button B to select a mix number.

The O2 and He percentages change to the programmed mix and the PO2 indicator changes to reflect the PO2 for the selected mix.

Note: Only the mix numbers that have been programmed with a gas mixture are available.

3. Press button A to lock in the mixture and return to the primary diving mode screen.

   Note: You cannot lock in a mix if it causes you to exceed a PO2 of 1.6 atmospheres.

Warnings while in dive mode

While in diving mode, there are several warnings that you should be alert to.

- Default warning
- Ascent rate warning
- PO2 limit warning
- PGT limit warning
- Oxygen limit index (OLI) warning
- Decompression warning
- Decompression stop violation warning
- Out-of-range warning

Default warning

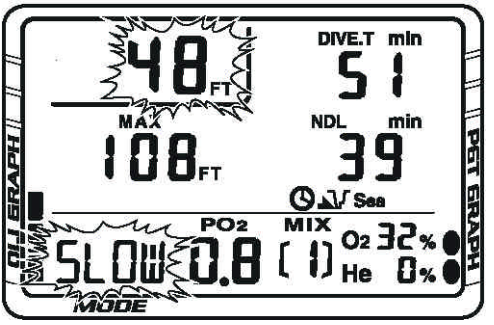
If the computer is in default mode at the beginning of a dive, an audible alarm sounds for three seconds. If you ascend and set the mix percentages, you can restart the dive. See “Understanding default mode” for more information.

Ascent rate warning

The NiTek He assumes that you keep your ascent rate within the following limits:

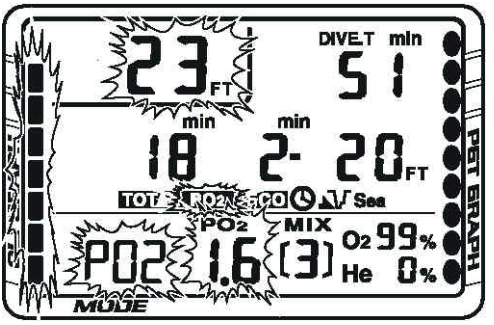
Depth range	Ascent rate
0 to 19 feet (0 to 5.9 meters)	26 feet (8 meters) per minute
20 to 58 feet (6 to 17.9 meters)	39 feet (12 meters) per minute
59 feet (18 meters) or deeper	52 feet (16 meters) per minute

If you exceed these ascent rates, an audible alarm sounds for three seconds and “slow” is displayed and flashes on the screen. The warning displays until you slow your ascent to an acceptable rate or you reach 5 feet (1.5 meters). If the ascent rate is violated twice, the “slow” symbol appears in log mode after the dive.



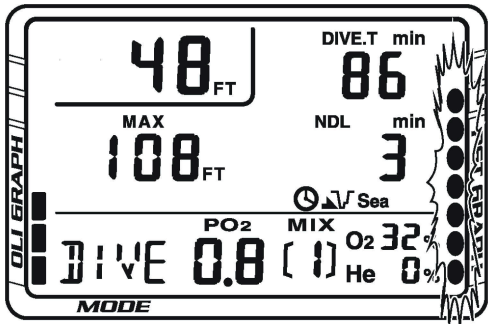
PO2 limit warning

The PO2 warning indicates that you have exceeded the 1.4 atmospheres and/or 1.6 atmospheres for the gas you are breathing. If you set the PO2 for 1.4 atmospheres, an alarm sounds and the current depth and PO2 information flashes. If you set the PO2 for 1.6 atmospheres, the OLI bar graph flashes in addition to the alarm and current depth and PO2 flashing.



PGT limit warning

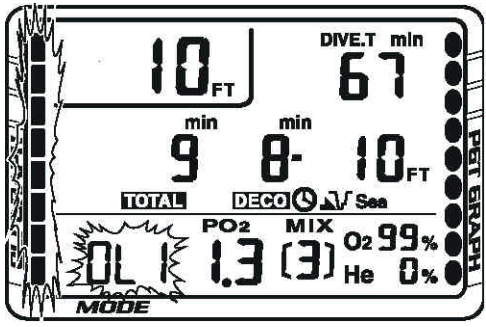
The PGT limit warning indicates that you are approaching the no-decompression limits. When seven or more bars are displayed, an audible alarm sounds and the PGT graph flashes.



Oxygen limit index (OLI) warning

The NiTek He's oxygen limit index (OLI) reflects the cumulative effect of your exposure to elevated partial pressures of oxygen. The PO2 warning only accounts for the intensity of the exposure, but the OLI accounts for both the intensity and length.

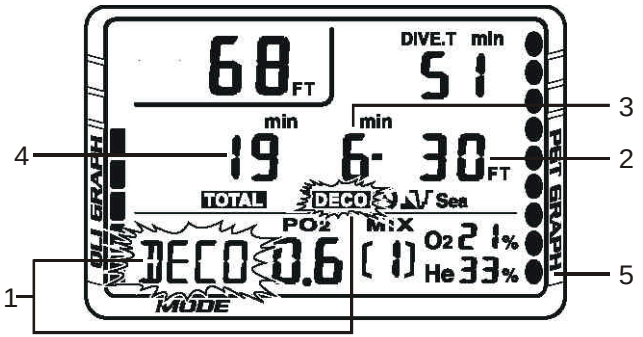
When seven of the O2's eight bars are displayed, the computer's audible alarm sounds for three seconds, and "OLI" flashes for ten seconds. If you do not ascend to a shallower depth, and all eight of the O2's bars are displayed, the alarm sounds again and "OLI" flashes. "OLI" continues to flash until the O2 bar graph drops to seven bars. This warning appears in log mode after the dive.



Decompression warning

If you exceed the no-decompression limits, the computer enters decompression mode. An audible alarm sounds for three seconds indicating that you have decompression stop requirements.

Caution: Decompression diving is considered to substantially increase your risk of decompression illness ~~more than dives made within no-decompression limits.~~



Decompression warning with “DECO” displayed on the screen

(1) Deco stop symbol: The “DECO” symbol displays indicating that you have to stop at the depth displayed.

(2) Required stop depth: This is the required decompression stop depth.

(3) Required stop time: This is the time you must remain at the indicated stop depth.

(4) Total ascent time: This is the total amount of time (in minutes) you must spend at the decompression stops and the ascent time between decompression stops.

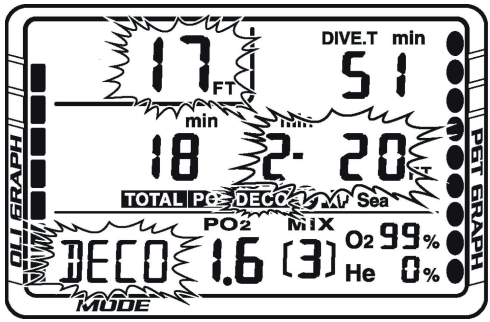
(5) PGT bar graph: This is how much nitrogen and helium the computer assumes your body has absorbed. There are a maximum of nine bars. When all bars are displayed, it means that you are at or have exceeded the no-decompression limits and have entered decompression.

Decompression stop violation warning

A decompression stop violation warning takes place when you ascend to a shallower depth than the indicated stop depth or if you do not spend sufficient time at the required depth before ascending. When you enter this violation, the computer's audible alarm sounds, and the current depth, stop depth, stop time, and "DECO" flashes. These items continue blinking as long as you remain shallower than the indicated stop depth.

Note: During a deco stop violation, the computer's ascent rate warning does not function.

Caution: If you do not correct an indicated deco stop violation, the warnings continue for several minutes after surfacing. At this point, the computer is not usable for the next 48 hours.



Out-of-range warning

The following can cause the out-of-range warning:

- Descend below the computer's maximum operating depths for computer mode or gauge mode
- Exceed an actual bottom time of 599 minutes 699
- Accrue a total ascent time of over 999 minutes

The out-of-range warning consists of:

- The audible alarm sounds for three seconds
- The entire screen flashes

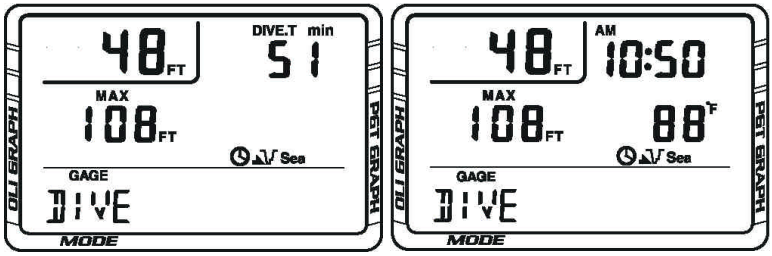
WARNING: A NiTek He displaying an out-of-range warning is incapable of displaying other critical information such as depth, time, ascent rate, PO2, OLI and deco stop violations, and required decompression stops. For this reason, you should not, under any circumstance, use a NiTek He in such a way that would cause an out-of-range warning. Under such conditions, the risk of serious personal injury or death would be substantial.

Gauge mode

When selected, gauge mode is automatically entered when the computer enters the water. It begins displaying depth and time once you descend below 5 feet (1.5 meters).

Note: To enter and set up gauge mode operation, see “Using gauge mode.”

While in gauge mode underwater, there are two screens you can toggle between. The primary screen displays depth, time, and maximum depth. The second screen displays time of day and temperature.



To toggle between screens underwater:

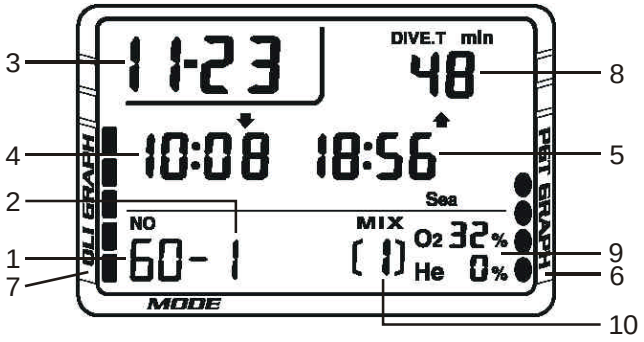
1. Press and hold button B to switch to the second screen.
2. Release button B to return to the primary screen.

Nothing stated about log starting once computer is below 5ft for 5 minutes or that re-decending within 10 minutes resumes previous dive.

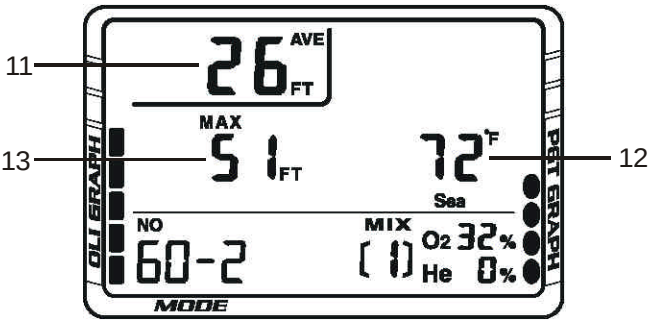
Log mode

For each dive, the NiTek He stores information, such as depth, time, temperature, etc. in a log. This stored log information can be viewed directly from the NiTek He's screen when in log mode. A to total of 30 hours or 60 dives can be stored.

Because of the amount of information the NiTek He stores, there are two pages that you can toggle between for each dive. Each dive is assigned a number and has a date for the day. Each log page displays the log number and the page number, making it easy for you to toggle between the dive log pages.



Page one for a dive in log mode



Page two for a dive in log mode

(1) Log entry number: This is the sequence in which the log appears. The most recent log entry has the highest number, which began with log one. When the computer's memory is full, the oldest dives are overwritten with the new dives. This causes the log entry number assigned to a particular dive to change.

(2) Page number: This is the log page number. Each dive has two pages of logged information.

(3) Date: This the month and day of the dive.

(4) Descent time: This is the time you started the dive, indicated by a down arrow.

(5) Ascent time: This is the time you surfaced from the dive, indicated by an up arrow.

(6) PGT exposure bar graph: This is the amount of residual nitrogen and helium in your body at the end of the dive.

(7) O2 OLI bar graph: This indicates CNS toxicity level at the end of the dive.

(8) Dive time: This is the actual bottom time for the dive.

(9) FO2 and FHe gas percentages: These are the FO2 and FHe gas percentages that you entered for the dive. All calculations where based on these percentages.

(10) Mix number: This is the mix number used on the dive.

(11) Average depth: This is the average depth reached during the dive.

(12) Temperature: This is the coldest temperature reached during the dive. If the coldest temperature reached during the dive is outside the range, "Hi" or "Lo" is displayed.

(13) Max depth: This is the maximum depth reached during the dive.

To view a dive log:

1. Press button A until "LOG" is displayed.
2. Press button B to enter the log mode screen.
3. Press button B to change to the second page number for a dive.

-OR-

Press button B to scroll “down” through the logged dives. To fast scroll, press and hold button B.

-OR-

Press button A to view all mixes used on the dive.

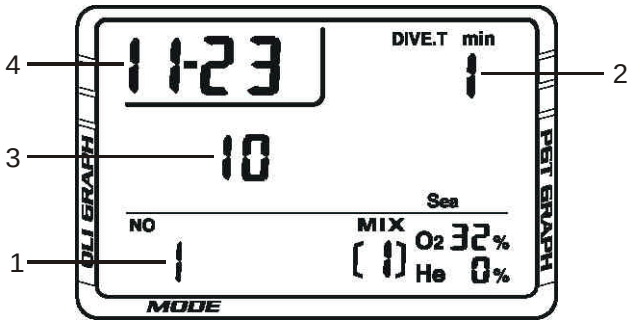
4. When finished, press and hold button A for 1 to 2 seconds to return to surface mode.

Profile mode

Profile mode enables you to see a record of the depths you reached at various points during a dive. You can display a detailed profile of each dive stored in the log. When a dive is selected, the computer automatically displays the depth and the time in the dive when you reached that depth until it reaches the end of the dive.

Dive profile information is either stored in 15- or 30-second intervals during a dive. This must be set in dive mode before a dive. Refer to “Setting the dive profile sampling rate” for more information.

The dive number and date of the dive are displayed when you scroll through the dives. This makes it easy to find the dive profile you want to view.



(1) Dive log number: This is the dive number that corresponds to the dive number when in log mode.

(2) Dive time: This tells you at what time during the dive you reached the depth indicated.

(3) Depth: This is the depth that corresponds to the displayed dive time. Depending on what profile sampling rate you have set, either two depth readings (30-second rate) or four depth readings (15-second rate) are displayed for each minute during a dive.

(4) Date: This the month and day of the dive.

To view a dive profile:

1. Press button A until “PROF” is displayed.
2. Press button B to enter the profile mode screen.
3. Press button B to scroll “down” through the logged dives. To fast scroll, press and hold button B.

   Note: Once a dive profile is selected, the computer automatically progresses through the different depths and times of the dive.
4. When finished, press and hold button A for 1 to 2 seconds to return to surface mode.

PC transfer mode

If you purchased the optional personal computer interface for the NiTek He, you can transfer the stored dive log information to your PC.

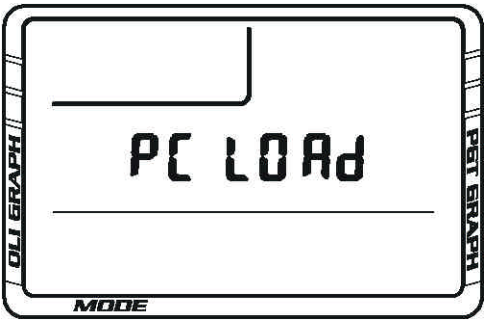
Before transferring the dive log

You must complete the following before transferring the dive log.

- Install the NiTekLogic software onto your PC. Open the program > click Options > and check the Uploader tab. Make sure the COM port selection in the NiTekLogic software matches the COM port you are connecting to on your PC.
- Plug one end of the cable supplied with the interface into a COM port on your PC. Plug the other end into the interface module.
- Set the NiTek He to PC transfer mode as described below.
- Place the NiTek He on the interface module and secure the strap over the computer. Click the computer icon in NiTekLogic. A dialog box should appear indicating the beginning of data transfer. If it is not uploading, check your COM port settings.

Notes

- If the dialog box says “negotiating” and cuts off before saying “transfer,” there is probably a COM port setting issue. Check to see that you are using the correct COM port.
- If there is an error reported after the dialog box says “transfer,” check for a loose or dirty connection between the NiTek He and the interface module.



To enter PC transfer mode:

1. Press button A until “PC” is displayed.
2. Press button B to enter the PC transfer mode screen.

   “PC LOAD” is displayed on the screen.
3. Transfer the dive log data to your PC. Follow the instructions on the previous page.
4. When finished, press and hold button A for 1 to 2 seconds to return to surface mode.

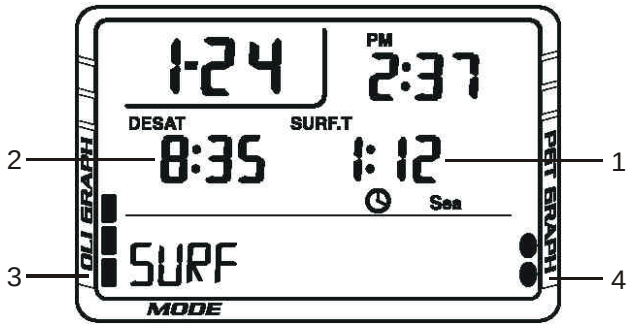
Surface mode (upon surfacing from a dive)

Once you surface from a dive, the NiTek He automatically switches to surface mode. In addition to the normal information displayed in surface mode such as time of day, there is other information that is displayed that pertains to the dive you just completed. This includes:

- Desaturation time
- Surface interval time
- PGT bar graph
- Oxygen limit index (OLI) bar graph

This information is displayed on both screens until the NiTek He calculates that it is no longer needed or after 24 hours have passed since the last dive.

Note: If you are making repetitive dives, you need to pay attention to your surface interval and use it in conjunction with plan mode. This ensures that you stay within no-decompression limits.



(1) Surface interval time: This is the amount of time you have spent on the surface since your last dive if there is residual nitrogen present from a previous dive. It can display up to 24 hours of surface interval time.

(2) Desaturation time: This is the amount of time, expressed in hours and minutes, that must pass before the residual nitrogen levels drop to a point where subsequent dives are treated as a single (non-repetitive) dives. This is not the same as “time to fly.”

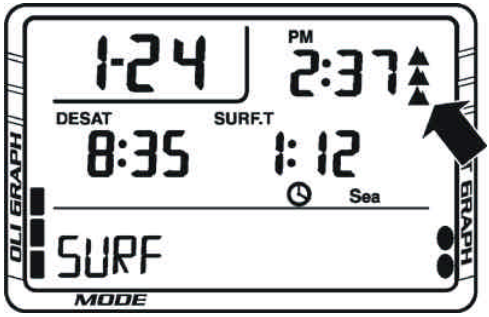
(3) O2 OLI bar graph: This indicates CNS toxicity level at the end of the dive. This drops as your surface interval time increases.

(4) PGT exposure bar graph: This is the amount of residual nitrogen and helium in your body at the end of the dive. This drops as your surface interval time increases.

WARNING: It is recommended that you wait at least 24-hours following any dive before flying in an aircraft or driving to altitude. Failure to allow sufficient surface interval time before doing so may increase your risk of decompression illness (DCI).

Altitude operation

The NiTek He adjusts automatically for diving at altitudes of up to 19,685 feet (6,000 meters). To show that the NiTek He has made the altitude adjustment, it displays the altitude settings using symbols representing mountains.



Altitude rank symbols

Symbol	Altitude range
No symbol	Sea Level to 3,281 feet (1000 meters)
▲	2,297 to 5,906 feet (700 to 1,800 meters)
▲▲	4,593 to ~~8,535~~ 8,530 feet (1,400 to 2,600 meters)
▲▲▲	7,546 to 19,685 feet (2,300 to 6,000 meters)
ERR	Out of range above 19,685 feet (6,000 meters)

Prior to using the NiTek He at altitudes substantially above sea level, you should find out what the actual altitude of your dive site is. Make certain that the altitude settings the NiTek He displays accurately match the altitude you are at.

Notes

- Do not use the NiTek He unless the altitude settings accurately match the actual height above sea level you are diving in. Doing so could cause the NiTek He to display inaccurate information.

- Do not use the NiTek He when the “ERR” symbol is displayed. This means that you are above an altitude of 19,680 feet (6,000 meters), which is beyond the NiTek He’s ability to function accurately.
- Do not place the NiTek He in dive mode when making sudden, substantial changes in altitude, such as when flying in an airplane. This can be caused by storing the NiTek He with wet dive gear, which can touch its external electrical contacts and cause it to enter dive mode. This can interfere with the computer’s ability to function accurately.

The NiTek He monitors and displays altitude information in all modes, except PC transfer mode. Upon arriving at altitude, the NiTek He’s PGT bar graph may show that there is excess nitrogen present, even though you may not have made any dives in the preceding 24 hours.

If you have obtained the altitude specialty diver training which everyone should do before diving at altitudes substantially above sea level, you already understand that this should be expected. By ascending to a higher altitude from a lower one, your body has more nitrogen saturated in body tissues than would be present had you spent the preceding 24 hours at the higher altitude. By displaying residual nitrogen and a surface interval, your NiTek He is merely reflecting this fact.

If the level of residual nitrogen calculated by the NiTek He is unusually high (seven or eight bars) when going to altitude, the computer will be unable to enter dive mode. Avoid taking the computer to altitude when residual nitrogen levels are this high, and do not enter the water until nitrogen levels have dropped substantially.

Chapter 3

Care and maintenance

Summary

This chapter provides care and maintenance and battery information for the NiTek He.

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Proper handling techniques

The NiTek He is constructed to withstand the most demanding diving conditions. It is, however, a high precision instrument, which requires proper care.

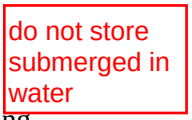
Caution: Failure to follow these handling techniques may result in damage to the NiTek He.

- Do not store the computer in hot and/or humid environments. The pressure transducer is sensitive to both heat and humidity. If impaired, it may cause incorrect altitude or depth readings.
- When in hot and/or humid environments, dip the computer in water for several minutes to cool it to room temperature before using it. If it is cold, allow the computer to warm to room temperature. Do not take it underwater immediately after doing so.
- Do not transport your NiTek He on an aircraft or take it to altitude while it is sealed in an air-tight container. Doing so may interfere with its ability to correctly read, display, and track depth information.
- The NiTek He's Liquid Crystal Display (LCD) may darken if left in a hot environment (such as on a car's dashboard). It will return to normal once allowed to cool, however, extensive exposure to heat may shorten LCD life.
- Be aware that weather-related changes in air-pressure can cause incorrect display of altitude settings. Be sure to check indicated altitude settings against actual altitude before use. Your NiTek He is not to be disassembled by anyone other than Dive Rite or its authorized dealers. Unauthorized disassembly will violate the warranty.
- If the NiTek He does not appear to be functioning properly, do not use it to dive. Return it to your authorized Dive Rite dealer for repair.
- The NiTek He should not come in contact with solvents or any type of chemical substances

on in damp environment

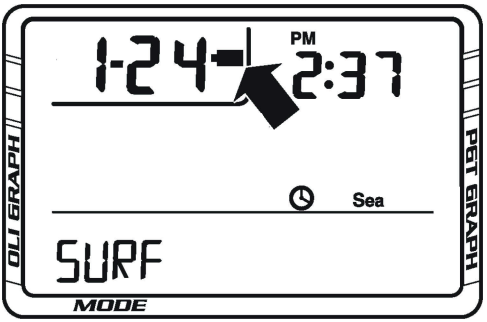
Cold weather will dim LCD dsiplay

- Do not use compressed air to dry the NiTek He
- Do not use the NiTek He in hyperbaric chambers if the device is not fully submerged in water
- Always rinse the computer with freshwater after use
- Store the NiTek He in a cool, dry location. After diving, wipe the computer dry and store it in a location separate from other damp items.



Low battery warning

The battery that comes with the NiTek He is designed to last for up to three years under normal use. You may get more or less use from the battery depending on how often it is used and how it is cared for.



Cautions

- All NiTek He functions may cease within two to three days of the low battery symbol first appearing. Always have low batteries replaced promptly.
- A depleted battery that is left in a NiTek He for a long period of time may leak. Replace batteries promptly.

Replacing the battery

Note: Once the low battery warning appears, you must return the NiTek He to your local authorized Dive Rite dealer for battery replacement. Be sure to upload or copy all dive log data to your logbook before replacing the battery.

Seiko states that the battery symbol will blink when battery starts to run low and then is on constantly when critical. They also recommend to download/record logbook before replacing battery.

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